

REMARKS

The Office Action of **April 15, 2003**, has been received and its contents carefully noted. Applicants respectfully submit that this response is timely filed and fully responsive to the Office Action.

Claims 1-104 were pending the present application prior to the above amendment. By the above amendment, claims 1, 3, 19, 20, 36, 38, 54, 55, 71, 73, 80, 81, 88, 90, 97, and 98 are amended to correct a discovered typographical informality. No new matter is introduced (see, e.g., Specification, Embodiment 2 and FIGs. 6-9, gradation power supply (VR) of FIG. 7, and discussion in Specification thereof). Accordingly, claims 1-104 remain pending in this application, of which claims 1, 19, 36, 54, 71, 80, 88, and 97 are independent, and which are believed to be in condition for allowance for at least the reasons stated below.

Correction of Discovered Typographical Informality Does Not Introduce New Matter

The present amendment amends claims 1, 3, 19, 20, 36, 38, 54, 55, 71, 73, 80, 81, 88, 90, 97 and 98 and the Specification to correct a discovered typographical informality, wherein “lamp,” with respect to a type of D/A converter, is amended to “ramp.” No new matter is introduced. Specifically, one of ordinary skill in the art at the time of invention would recognize the noted typographical informality, for example, based on the “ramp” type D/A converter circuit disclosed with respect to Embodiment 2 and FIGs. 6-9, wherein a gradation power supply (VR) has a ramp type signal, as shown in FIGs. 7 and 9. Accordingly, the amendment to claims 1, 3, 19, 20, 36, 38, 54, 55, 71, 73, 80, 81, 88, 90, 97 and 98 and the Specification to correct noted typographical informality does not introduce new matter.

35 U.S.C. 103 Rejections

Claims 1-8, 19-25, 71-79, and 80-87 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Lewis* (U.S. Patent No. 5,589,847) in view of *Suzuki* (U.S. Patent No. 4,571,584) and further in view of *Ema et al.* (U.S. Patent No. 6,118,798 – hereafter *Ema*); claims 36-43, 54-60, 88-96, and 97-104 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Lewis* in view of *Suzuki* and further in view of *Akiyama et al.* (U.S. Patent No. 5,977,940 – hereafter *Akiyama*); claims 9, 26, 44, and 61 stand rejected under 35 U.S.C.

§103(a) as unpatentable over *Lewis, Suzuki, Akiyama* and *Ema* in view of *Friends et al.* (U.S. Patent No. 5,247,190 – hereafter *Friends*); and claims 10-18, 27-35, 45-53, and 62-70 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Lewis, Suzuki, Akiyama* and *Ema* in view of *Matsueda et al.* (U.S. Patent No. 6,384,806 – hereafter *Matsueda*). Applicants respectfully contend that independent claims 1, 19, 36, 54, 71, 80, 88, and 97 and claims dependent therefrom, as amended, are clearly patentably distinct over the applied references, alone or in combination, for at least the reasons advanced below.

**The Applied References Alone or in Combination Fail to Teach or Suggest the Claimed
Invention**

Applicants respectfully contend that the applied references, alone or in combination, clearly fail to teach or suggest each and every element defined by the pending claims, as amended. For example, independent claims 1, 19, 36, 54, 71, 80, 88, and 97, as amended, recite that “the plurality of D/A converter circuits are **ramp** type D/A converter circuits.”

Thus, independent claims 1, 19, 36, 54, 71, 80, 88, and 97 and claims dependent therefrom recite ramp type D/A converter circuits, wherein, advantageously, “the number of the D/A converter circuits is not limited to k/n” (Specification, page 13, lines 7-8) and “it becomes possible to greatly reduce the occupied area of the driver circuit and the number of elements” (Specification, page 21, lines 11-12). By contrast, the applied references, taken alone or in combination, fail to teach or suggest ramp type D/A converter circuits, as recited in independent claims 1, 19, 36, 54, 71, 80, 88, and 97.

Specifically, *Ema* discloses a semiconductor laser control system for driving and controlling a semiconductor laser, which is used as a light source in each of a laser printer, a digital copier, an optical disc drive device, and optical communication apparatus. Although, the present Office Action asserts that *Ema* teaches a bit comparison pulse width converter circuit (i.e., integrated circuit 13, data modulation unit 11 and signal generating unit 111 in Fig. 10) and an analog switch (i.e., switch 114A, 114B in Fig. 11) as corresponding to a lamp type D/A converter circuit, the noted devices of *Ema* do not teach or suggest or function as ramp type D/A converter circuits, as recited in independent claims 1, 19, 36, 54, 71, 80, 88, and 97.

The remaining applied references, *Lewis*, *Suzuki*, *Akiyama*, and *Matsueda*, fail to cure the noted deficiencies in *Ema*, as also clearly failing to teach or suggest a ramp type D/A converter circuit. Accordingly, the applied references, alone or in combination, clearly fail to teach or suggest that “the plurality of D/A converter circuits are ramp type D/A converter circuits,” as recited in independent claims 1, 19, 36, 54, 71, 80, 88, and 97.

Ema is Non-Analogous Art

Ema is non-analogous art and therefore cannot be properly combined with *Lewis*, *Suzuki*, *Akiyama*, and/or *Matsueda*. In determining whether or not a reference is analogous art a two-part test has been established: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. *In re Wood*, 599 F.2d 1032, 202 U.S.P.Q. 171 (C.C.P.A. 1979); *In re Clay*, 966 F.2d 656, 23 U.S.P.Q.2d 1058 (Fed.Cir.1992). *Ema* fails on both counts.

First, *Ema* is directed to the field of “a semiconductor laser control system for driving and controlling a semiconductor laser, which is used as a light source in each of a laser printer, a digital copier, an optical disc drive device, and an optical communications apparatus” (*Ema*, col. 1, lines 10-14). By contrast, the present invention is directed to the field of “an image display device to which a digital picture signal is inputted and a driver circuit” (Specification, page 1, lines 5-6), which is very different from the field of semiconductor laser control systems.

Second, *Ema* is not reasonably pertinent to the particular problem with which the present inventors are involved. Specifically, *Ema* addresses problems with semiconductor laser control systems, wherein “the lack of accuracy in detection of a differential quantum efficiency of a semiconductor laser, and adaptability thereto may be insufficient,” whereby “it may be difficult to provide a light output waveform which approximates that of a rectangular wave” (*Ema*, col. 6, lines 59-63). By contrast, the present invention addresses problems with image display devices, wherein: (i) “extension of the wiring becomes very long,” which results in “a load to the signal transmission line, such as load capacitance or resistance, becomes large, and the delay of the digital picture signal and the waveform distortion become large, and (ii) as

“the number of pixels increases, ... a display based on accurate digital picture signals becomes difficult” (Specification, page 5, lines 3-10). The problems with semiconductor laser control systems addressed by *Ema* are quite different from the problems with display devices addressed by the present invention.

Thus, *Ema* is not from the same field of endeavor and is not reasonably pertinent to the particular problem with which the present inventors are involved. Accordingly, *Ema* is non-analogous art and therefore cannot be properly combined with *Lewis*, *Suzuki*, *Akiyama*, and/or *Matsueda*.

No prima facie Case of Obviousness Has Been Established

In addition, the requirements for establish a *prima facie* case of obviousness, as detailed in MPEP § 2143 - 2143.03 (pages 2100-122 - 2100-136), are that: first, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference to combine the teachings; second, there must be a reasonable expectation of success; and, finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

By contrast, the present Office Action fails to provide any evidence of some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the applied references to combine the teachings thereof. Further, there is no reasonable expectation of success with respect to the proposed combination. Finally, the applied references, alone or in combination, fail to teach or suggest that “the plurality of D/A converter circuits are ramp type D/A converter circuits,” as recited in 1, 19, 36, 54, 71, 80, 88, and 97. Accordingly, a further rejection of independent claims 1, 19, 36, 54, 71, 80, 88, and 97 would be improper based on the applied references.

The Dependent Claims are Allowable Over the Applied References Alone or in Combination

Dependent claim 2-18, 20-35, 37-53, 55-70, 72-79, 81-87, 89-96, and 98-104 are allowable over the applied references, alone or in combination, on their own merits and for at least the reasons discussed above with respect to independent claims 1, 19, 36, 54, 71, 80, 88, and 97.

The Present Amendment Should be Entered

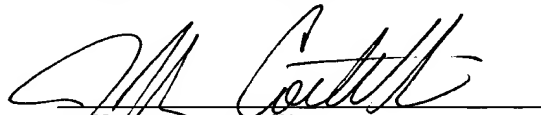
The present amendment is submitted in accordance with the provisions of 37 C.F.R. §1.116, which after Final Rejection permits entry of amendments placing the claims in better form for consideration on appeal. As the present amendment corrects a discovered typographical informality and is believed to overcome outstanding rejections under 35 U.S.C. § 103, the present amendment places the application in better form for consideration on appeal. It is therefore respectfully requested that 37 C.F.R. §1.116 be liberally construed, and that the present amendment be entered.

Conclusion

Therefore, it is believed that independent claims 1, 19, 36, 54, 71, 80, 88, and 97 and claims dependent therefrom are clearly patentably distinct over the applied references, alone or in combination. In view of the foregoing remarks, reconsideration and withdrawal of the rejection is earnestly solicited.

Having responded to all rejections set forth in the outstanding final Office Action, it is submitted that the claims are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, the Examiner is courteously requested to contact Applicants' undersigned representative.

Respectfully submitted,


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